International Journal of Asian Social Science
ISSN(e): 2224-4441
ISSN(p): 2226-5139
DOI: 10.18488/journal.1.2018.812.1130.1138
Vol. 8, No. 12, 1130-1138

URL: www.aessweb.com

TOURISM AND POVERTY REDUCTION: EVIDENCE FROM TANZANIA

Salama Yusuf[1+]
Mshenga Machano Ali[2]

[1,2]*Stone Town Conservation and Development Authority, Tanzania*
[1]*Email: salama.yusuf@gmail.com*

(+ Corresponding author)

Article History
Received: 8 August 2018
Revised: 11 September 2018
Accepted: 15 October 2018
Published: 12 November 2018

Keywords
Tourism
Poverty reduction
Vector error correction model.

JEL Classification:
Z32.

ABSTRACT

The paper examines the contribution of tourism towards poverty reduction in Tanzania for the period 1985 to 2015. Time series analytical method has been used in the analysis of data, by using vector error correction model and Granger causality tests, to examine the long run and causal relationship between tourism development and poverty reduction in Tanzania. The empirical results indicated a long-run relationship between tourism and poverty reduction also the Granger causality tests suggest unidirectional causal relation running from tourism earning to poverty reduction. Tourism as an industry can play very important roles in economic development including improved livelihoods and socio-cultural development that are critical for poverty alleviation. Therefore, in order to alleviate poverty in Tanzania through tourism, there is a need for more government regulating mechanism, aggressive promotion strategies, enhancement of skills and knowledge of the tourism sector, increasing effort in conserving and preserving heritage sites, and improvement of infrastructures and facilities.

Contribution/ Originality: This study contributes in the existing literature, by using new estimation methodology (vecm) and come up with specific evidence of the contribution of tourism in reducing poverty in Tanzania.

1. INTRODUCTION

Tourism has been associated with positive impact in terms of generating foreign exchange earnings, creating employment, income, and stimulating domestic consumption in countries. Richardson (2010) argued that tourism leads to increase of per capital income of the people and hence reduce poverty. Tourism in Tanzania has been growing with a GDP growth rate of 2.5% (BOT, Monetary Policy Statement 2014/15). This translates to the high tourism performance in Tanzania. Despite various efforts taken by the Government of United Republic of Tanzania on poverty reduction, including marketing Tanzania overseas, improvement of tourism sites, National Strategies for Growth and reduction of poverty (NSGRP II 2010-2015), Trade liberalization Policy, Vision 2020 and developing tourism national policy with an objective to assist in efforts to promote the economy and livelihood of the people, especially poverty alleviation through encouraging the development of sustainable and quality tourism that is culturally, economically and socially acceptable, still poverty is a challenge in Tanzania for example in

Singida, has 49% of the population below the national poverty line, Mwanza and Shinyanga poverty incidence is over 40% faced underdevelopment and serious poverty. Mwanza are below the national standards and Shinyanga has an extremely low level of development in education and health (Japan Bank for International Cooperation, 2010). In Tanzania rapid growth rate in tourism development is viewed as an important industry for poverty alleviation creating a number of advantages which include, among others, creation of job opportunities, boosting up sales of different goods and services such as agricultural products and handcrafts, as well as cultural entertainment performed by locals the majority of them living in poor conditions. Therefore, the purpose of this paper is to determine empirically whether tourism has any contribution towards poverty reduction in Tanzania. The paper contributes to the present literature on tourism-poverty reduction nexus by applying the time series vector error-correction model proposed by Johansen (1995) to concur *Granger* causality in a time series data framework. The paper is organized as follow. In the next section we present some stylized fact about the role of tourism in Tanzania. In section 3, we provide the method of estimation and in section 4, we discuss the empirical results. The last section contains conclusion.

1.1. Tourism Policy Framework and Poverty Reduction Trend in Tanzania

Until 1991, Tanzania did not have a definite tourism policy. Tourism in Tanzania evolved through various stages and periods. During the first decade of independence, tourism was not viewed as a priority sector for development. The focus of the government was only on wildlife conservation, putting little emphasis on actual utilization and promotion. In 1971, the Tanzania Tourist Corporation (TTC) was established to promote and market tourism within and outside the country. This paid off as more tourists visited Tanzania in 1972 (199,200 tourists) compared to 68,400 tourist in 1971 (Luvanga and Shitundu, 2003).

However, with the effects of the drought of 1974, the Uganda War of 1979 and the economic crisis that emerged from the late 1970s to the mid-1980s, tourism industry did not perform impressively. The tourism policy of 1991(revised in1999), places emphasis on the promotion of private sector investment, environmental conservation and consumer protection (Luvanga and Shitundu, 2003). The policy specifically aimed to perform economic, social, environmental and cultural objectives which include among others, the maximization of tourism's contribution to the country's development through increased foreign exchange earnings, employment creation, human resource development and investment opportunity through the development of entrepreneurship in tourism sector and the development of local industry that produce goods and services for tourism; to establish and maintain the competitive, transparent and effective legal and regulatory framework for the tourism sector; to ensure the conservation of tourism attractions, preservation of the environment and the sustainable development of the tourism industry and lastly, to preserve and better manage the country's rich cultural and natural heritage as tourist attractions and for the benefit of current and future generations.

The reforms that started in 1986 in Tanzania, and particularly the increased private sector participation, had a positive impact on the tourism industry. Apart from the Tourism Policy of 1991 (revised in 1999), the strengthening of investment incentives under the Tanzania Investment Act of 1997 acted in a positive way in attracting investors into the sector. Tourism became the fastest growing industry in Tanzania in the 1990s, after decades of stagnation. It is a sign of Tanzania joining the world, where tourism is one among the largest industries. Tourism arrivals for example, increased from 50,000 in 1985 to 1,173,000 in 2015. Tourist earnings also increased from US$ 130 million to US$ 2,201 billion during the same periods. The annual growth rate of tourism since 1985 has been over 20 percent, showing how tourism is positively responding to the reforms (World Bank Group, 2016).

Problems in Kenya, negatively affecting the flow of tourists, also played a role in increasing the flow of tourists to Tanzania. Unfortunately, tourism did not perform well during the year 2000 and 2001. Inflows of tourists declined in year 2000 with marginal increase in the year 2001. However, tourist earnings improved marginally in year 2000 but declined in year 2001. Earnings from tourism contributed 22.1 percent to the national GDP in 2014

WTTC, compared with only 1.5 percent in 1990 and around 0.3 percent in the early 1980s. The over 1,173,000 arrivals in 2015 mean a twenty three -fold increase compared to the 50,000 annual visitors in the early 1985.

Generally, Tanzania is rapidly catching up with leading African tourist destinations, taking a sixth position (in earnings) in 1997 after South Africa, Morocco, Tunisia, Mauritius and Kenya, but number eight in arrivals, after Zimbabwe and Botswana. Luvanga and Shitundu (2003). In Tanzania Mainland there was a modest increase in tourist inflows from 754,000 in the 2010 to 1,173,000 in 2015, an increase of 43 percent. The increase in the number of tourists, revenue collection from tourism increased from US$1,255 million in 2010 to US$ 2,201 million in 2015.

Both Tanzania Mainland and Zanzibar did not perform well during the year 2001. In Zanzibar, both tourist inflows and revenue collection from the tourism sector decreased. The poor performance of the tourism sector in 2001 is attributed to the effect of September 11, 2001 terrorist attacks in the USA which disrupted tourism activities in the country (and other parts of the World). In the case of Tanzania, the tourism business was affected because the attack happened at the end of the second season (July-September) of mass tourism, where a big number of organized tourists visit the country especially the high spending tourists from the USA. However, important indicators of the size and direction of demand for tourist services are the number of tourists coming to the country as well as the gross foreign exchange earnings realized. Generally, tourism performance in Tanzania during the 2010s has been impressive. The growth rates in both arrivals and earnings for 2010-2015 were high, with earnings taking an upper hand. In Tanzania, growth rates for arrivals and tourism earnings were 11.45 and 26.0 percent respectively (WBG, 2016).

The socialistic economic management of Tanzania, which was initiated in the late 1960s, led to the stagnation of the macro economy in the 1970s and then to economic crisis in the 1980s. In the late 1980s, the government introduced a structural adjustment policy to stabilize the macro economy. Poverty reduction efforts by the government started in the late 1990s with the cooperation of international donors (JBIC, 2010).

The government formulated the first Poverty Reduction Strategy (PRS) in 1997, and then announced the Vision 2025 in 1999. In 1998, Tanzania prepared the Poverty Reduction Strategy Paper (PRSP). The PRSP for the three years from 2000/01 to 2002/03, focused on income poverty and development of the education and health sectors. For the period between 2005/2006 and 2009/2010, the government has formulated the National Strategy for Growth and Reduction of Poverty (MKUKUTA/NSGRP) which is seen as the second phase of PRSP (JBIC, 2010).

It has been noted that the responsibility of the Tanzanian government for poverty reduction was strengthened through the formulation process of MKUKUTA. The "cluster approach" was introduced into MKUKUTA, which was to categorize prioritized issues by clusters. There are three clusters categorised in MKUKUTA: Cluster I for growth of the economy and reduction in income poverty; Cluster II for improvement of quality of life and social well-being; and Cluster III for governance and accountability. Each cluster has specific goals and target indicators. Therefore, the implementation arrangements of MKUKUTA are regarded as key for poverty reduction in Tanzania (JBIC, 2010).

2. METHODOLOGY

This study had the interest of examining the contribution of tourism toward poverty reduction in Tanzania. To determine that impact of tourism development on poverty reduction the basic model of this study was designed as follows:-

$$y = f(T) \tag{3.1}$$

Where *y is the* Gross National Income, which represents poverty and *T*, refer to the tourism activities, the tourism activities in this study represented by foreign earning, Trade openness, export and import. The reasons of including the trade openness in the model was to measure the impact of trade on poverty reduction as the

development of tourism is accompanied by technological progress, arrival of new business and hence poverty reduction. Then the basic model to answer the objectives of this study transformed into the regression of the following form:

$$y_t = \beta_0 + \beta_1 T_t + \varepsilon_t \quad (3.2)$$

Hence, the linear regression model is represented as follows:

$$logGNI_t = \beta_o + \beta_1 logERN_t + \beta_2 logTDO_t + \beta_3 logEXP_t + \beta_4 logIMP_t + \varepsilon_t \quad (3.3)$$

Where β_0 is the constant term, β_1, β_2, β_3 and β_4 are the parameters to be estimated, t = 1, 2… is the time index for the years from 1985 to 2015 and $\boldsymbol{\varepsilon}$ is the stochastic error term. GNI represents gross national income, ERN tourism earning, TDO trade openness, EXP export and IMP import respectively.

The vector error correction model (VECM) was estimated to find out long-run causality and short-term dynamics if there is an evidence of cointegration relationship among the variables. This allows causality to be determined in two ways, the first one is short run causality, which will be determined by the lagged differences of the variables and the second is Long-run causality, which will be determined by the significance of the coefficient of the error-correction term. If the coefficient of the error-correction term is negative and statistically significant in terms of the associated t-value, this show that there is unidirectional or bidirectional causality among variables (Engle and Granger, 1987).The VECM is estimated as shown below:-

$$\Delta GNI_t = T_1 \sum_{i=1}^{k-1} u_{1i} \Delta GNI_{t-i} + \sum_{i=1}^{k-1} v_{1i} \Delta ERN_{t-i} + \sum_{I=1}^{k-1} w_{1i} \Delta TDO_{t-1} + \sum_{t=1}^{k-1} X_{1i} \Delta EXP_{t-1} + \sum_{i=1}^{k-1} Y_{1i} \Delta IMP_{t-1} + Z_{1i} ECT_{t-i} + e_t \quad (3.4)$$

$$\Delta ERN_t = T_2 \sum_{i=1}^{k-1} u_{2i} \Delta GNI_{t-i} + \sum_{i=1}^{k-1} v_{2i} \Delta ERN_{t-i} + \sum_{I=1}^{k-1} w_{2i} \Delta TDO_{t-1} + \sum_{t=1}^{k-1} X_{2i} \Delta EXP_{t-1} + \sum_{i=1}^{k-1} Y_{2i} \Delta IMP_{t-1} + Z_{2i} ECT_{t-i} + e_t \quad (3.5)$$

$$\Delta TDO_t = T_3 \sum_{i=1}^{k-1} u_{3i} \Delta GNI_{t-i} + \sum_{i=1}^{k-1} v_{3i} \Delta ERN_{t-i} + \sum_{I=1}^{k-1} w_{3i} \Delta TDO_{t-1} + \sum_{t=1}^{k-1} X_{2i} \Delta EXP_{t-1} + \sum_{i=1}^{k-1} Y_{2i} \Delta IMP_{t-1} + Z_{3i} ECT_{t-i} + e_t \quad (3.6)$$

$$\Delta EXP_t = T_4 \sum_{i=1}^{k-1} u_{4i} \Delta GNI_{t-i} + \sum_{i=1}^{k-1} v_{4i} \Delta ERN_{t-i} + \sum_{I=1}^{k-1} w_{4i} \Delta TDO_{t-1} + \sum_{t=1}^{k-1} X_{4i} \Delta EXP_{t-1} + \sum_{i=1}^{k-1} Y_{4i} \Delta IMP_{t-1} + Z_{4i} ECT_{t-i} + e_t \quad (3.7)$$

$$\Delta IMP_t = T_5 \sum_{i=1}^{k-1} u_{5i} \Delta GNI_{t-i} + \sum_{i=1}^{k-1} v_{5i} \Delta ERN_{t-i} + \sum_{I=1}^{k-1} w_{5i} \Delta TDO_{t-1} + \sum_{t=1}^{k-1} X_{5i} \Delta EXP_{t-1} +$$

$$\sum_{i=1}^{k-1} Y_{5i}\, \Delta IMP_{t-1} + Z_{5i}\, ECT_{t-i} + e_t \qquad (3.8)$$

$Z_1 ECT_{t-i}$ is the error term which explains the long run causality between variables. Where ε_t is the Error Correction Term which reflects the deviation from the long-run equilibrium path. The null hypothesis that ERN, TDO, EXP, IMP does not Granger cause GNI is rejected if $T, U, V, W, X, Y, Z \neq 0$ or are jointly significant or the coefficient of the error-correction term Z is significant. This means that the variable ERN, TDO, EXP, IMP, can Granger cause GNI even if the coefficients on the lagged changes in variables ERN, TDO, EXP, IMP are not jointly significant.

However, before running the VCEM as per Equation (3.3), the standard procedure is to test for unit root in the time series of variables involved by looking at the sample mean of time series variable which should have zero value (constant mean). If standard regression techniques are applied to non-stationary data, the end result could be spurious regression (Engle and Granger, 1987). Therefore, in order to validly undertake hypothesis tests about the regression parameters and avoid the spurious result, the researcher seeks to test the unit root problem.

In this study Augmented Dickey Fuller test (Dickey and Fuller, 1981) was used to estimate the relationship among the variable, and another test for determining whether a series is stationary or non-stationary is Philips and Perron test (PP Test) developed by Philips and Perron in 1988 with the assumption of error term to be more statistically independent and constant variance. The testing procedures are the same as the ADF test, but it has been concluded that PP test is more significant compared to ADF test because it present the corrected non parametric test efficiently and more account of the serial correlation problem compared to the t-statistic of ADF test.

After finding out that all the relevant variables are stationary and are of the same order of integration, then the next step is to test for cointegration existence. The study applied (Johansen and Juselius, 1990) using both the trace and the maximum eigenvalue tests. Then will follow techniques in time series cointegration proposed by Johansen and Juselius (1990), Johansen (1991) and Johansen (1995) to overcome the associated problem of spurious correlation and misleading inferences. If the variables are found to be cointegrated, the relationship may be interpreted as a long run relationship.

The Johansen procedure was applied at this point to test for cointegration and this can be done through the Vector Error Correction Model (VECM) as outlined in Engle and Granger (1987). The choice of appropriate lag-length (p) required for the test will be based on Akaike Information Criterion (AIC) proposed by Akaike (1969) to ensure that errors are white noise. Since the study will investigate the long-term relationship between tourism development and poverty reduction in Tanzania, then the hypothesis for the cointegration vectors was stated. In order to test the hypothesis, the order of the cointegration vector needs to be determined first. The order of cointegration was determined by constructing the trace statistics and the estimated values of the characteristic roots or eigenvalues.

3. THE EMPIRICAL RESULTS

3.1. Results of Unit Root Tests

This study test the presence of unit roots started with levels, first difference and later take the second difference using both ADF and PP tests. The results show that the series were found to be non-stationary (mean, variance and covariance is not constant over time) in level form and first difference (Tables not presented in the paper) but all

variables become stationary after taking the second difference (see Table 1), the P-values of the variables become significant (P<0.05), so we reject the null hypothesis. Thus, worth concluding that all variables are integrated of order two *I*(2).

3.2. Results of Cointegration Tests

After tested and proved that all variables are integrated at the same order *I* (2), Johansen-Juselius procedure was implemented to detect the cointegration relationship between the variables. The choice was tested using (AIC) and Schwartz Information Criterion (SIC). Table 2 signifies that both trace and Max- Eigen test show more than one co-integrated vector(r) among the variables. Trace test indicates four equations were co-integrated and the Max- Eigen test shown three equations were co-integrated, the result also indicate that the Null hypothesis (series are non-cointegrated) can be rejected at 5% significance level. Therefore, it is concluded that the series are co-integrated and a long run equilibrium relationship exists among the variables for that reason vector error correction mechanism was applied.

3.3. Results of Vector Error Correction Estimate

Given the results of the co integration test which revealed the existence of cointegration among variables in the poverty reduction models, vector error correction model (VECM) was considered appropriate for the analysis of the relationship between tourism developments and poverty reduction. This analysis of contribution of tourism toward poverty reduction is presented in the table 3 and equation below.

$$logGNI_t = 0.01475 + 1.68logERN_t + 3.03logTDO_t + 2.06logEXP_t - 1.25\ logIMP_t$$

From the Table 3 VECM result, the coefficient of the constant term is 0.01475$ implying that at zero performance of the various explanatory variables used, Gross National Income (GNI) stand at 0.01475$.

From the estimated regression equation above indicate that when everything else is kept constant one unit increasing in tourism earning rises the GNI as a proxy of poverty by 1.68$, which are compatible with the result of Komsan (2012) who conducted the study on modeling the linkage between tourism and multiple dimension of poverty in Thailand using a seemingly unrelated regression and the result indicated that tourism contributes toward poverty reduction. The increasing in Gross National Income meaning that local people in Tanzania raising their income and their basic necessity are met and on so doing their poverty is reduced. Therefore from these results, the null hypothesis, that tourism earning contributes toward poverty reduction is not rejected.

Similarly increasing in trade openness by one unit leads GNI to increase by 3.03, since the GNI is a proxy for poverty reduction it's raising reflect the reduction of poverty and are compatible with the result of Rodriguez and Rodrik (1999) who conduct the study on trade policy and economic growth using a simplest neoclassical growth model and found that there is a link between trade and poverty, be it directly between the two or through the impact of trade on growth and, in turn, on poverty reduction.

The coefficient of import indicate that one unit increase in import leads decrease in GNI by 1.25, the negative coefficient of import may be due to the fact that the imported goods are not utilized in area which can facilitate in the process of poverty reduction in Tanzania, the reduction in GNI showed that poverty increased due to importation of goods and services which is contrary to the result found by Kadir and Jusoff (2010) who conduct study on the cointergration of trade and tourism in Malaysia using an error correction method and found that import leads to poverty reduction.

The result obtained from the dynamic model indicates that the overall coefficient of determination (R^2) shows that 58.19 % GNI is explained by the independent variables in the equation. As the adjusted (R^2) tends to eliminate the influence of the number of explanatory variables involved, the adjusted R^2 of 0.4625$ shows that having

removed the influence of the explanatory variables, the dependent variable is still explained by the equation with 46.25%. However, the coefficient of ECM is 0.014269$ reveals that there is no speed of adjustment between the short-run and long-run realities of the cointegrating equations annually. This is because; the ECM coefficient is not consistent with the assumed negative value. The F-statistics at 4.87 255$ explains that the coefficients of the variables are not zero.

3.4. Results of Granger Long-run Causality

Cointegration test indicates that the time series are cointegrated, that means the causality relationship can't be ruled out. Hence, examination of the causal relationships as well as directions of the series could be done by Granger causality test. Table 5 shows the summary of the results of Granger-causality test for tourism and poverty reduction in Tanzania based on standard F-statistics. As seen from Table 5, there is one way causal effect at 5% significance level running from tourism earning to poverty reduction, export to poverty reduction, trade openness to tourism earning, export to tourism earning, and import to tourism earning. In addition, there are one-way Granger causalities at 10% significance level running from poverty reduction to trade openness, poverty reduction to import , trade openness to export and trade openness to imports.

4. CONCLUSIONS

This paper examines the contribution of tourism towards poverty reduction in Tanzania for the period 1985 to 2015. Time series analytical method has been used in the analysis of data, by using vector error correction model and Granger causality tests, to examine the long run and causal relationship between tourism development and poverty reduction in Tanzania.

Table-1. Results for ADF and PP Unit Root Test with Second differences

Variables	Test	Statistics	P-Value	Critical Values			Decision
				1%	5%	10%	Ho: unit root
GNI	ADF	-6.450965	0.0000	-3.699871	-2.976263	-2.62742	S-Reject null hypothesis
	PP	-8.512827	0.0000	-3.689194	-2.971853	-2.625121	S-Reject null Hypothesis
ERN	ADF	-5.271797	0.0003	-3.752946	-2.998064	-2.638752	S-Reject null Hypothesis
	PP	-21.44151	0.0001	-3.699871	-2.976263	-2.62742	S-Reject null Hypothesis
TDO	ADF	-8.846725	0.0000	-3.699871	-2.976263	-2.62742	S-Reject null Hypothesis
	PP	-10.7114	0.0000	-3.689194	-2.971853	-2.625121	S-Reject null Hypothesis
EXP	ADF	-5.913435	0.0000	-3.699871	-2.976263	-2.62742	S-Reject null Hypothesis
	PP	-12.36146	0.0000	-3.689194	-2.971853	-2.625121	S-Reject null Hypothesis
IMP	ADF	8.594488	0.0000	-3.699871	-2.976263	-2.62742	S-Reject null hypothesis
	PP	-14.93228	0.0000	-3.689194	-2.971853	-2.625121	S-Reject null hypothesis

Note: All variables become stationery after the second difference.

The study finding shows that tourism contributes to poverty reduction and that tourism development does granger cause poverty reduction and trade has a linkage with poverty reduction in Tanzania. More effort should be done on implementing policies, aggressive promotional strategies, legal system, good infrastructure and standard institution framework. There should be enhancement of skills and knowledge on the tourism sector, since tourism sector are necessary in creating employments, generation of revenue to the government and raising standard of

local people. In future, practitioners should examine the magnitude of leakages from tourism in order to benefit fully.

Table-2. Co-integration test result

	Test Statistics		Critical Values (5%)	
	Trace	Max Eigen	Trace	Max Eigen
r ≤ 0	116.2497**	48.28438**	69.81889	33.87687
r ≤ 1	67.96536**	29.5□081**	47.85613	27.58434
r ≤ 2	38.38455**	20.46096	29.79707	2□.13162
r ≤ 3	17.92360**	17.34054**	15.49471	14.26460
r ≤ 4	0.583056	0.583056	3.841466	3.841466

Note: **, asterisk denote rejection of the null hypothesis (series are non-co-integrated) at the 5% level of significant.

Table-3. Vector Error Correction Estimate

Variable	Coefficient	Standard Error	t-statistics
LGNI (-1)	1.000000		
LEARN(-1)	1.680260	0.23020	-7.29925
LTOD(-1)	3.035339	0.42739	-7.1019
LEXPORT(-1)	2.056496	0.36557	-5.62550
LIMPORT(-1)	-1.250123	0.40393	3.09489
C	0.01475		
R-squared	0.581967		
Adj. R-squared	0.462530		
Sum sq. resids	0.006676		
F-statistic	4.872553		
Log likelihood	77.04945		
ECT	0.014269		

Source: Researcher's Computation, 2016

Table-4. VECM Coefficients standard errors and t statistics

	$logERN_t$	$logTDO_t$	$logEXP_t$	$logIMP_t$
Std. Error	(0.2302)	(0.042739)	(0.36557)	(0.40393)
T-statistics	(-7.29925)	(-7.1019)	(-562550)	(-309489)

Source: Researcher's Computation, 2016

Table-5. Summary of granger causality test

Granger Causality Relationships			Significance Level
Tourist Earning	→	Poverty reduction	5%
Poverty reduction	→	Trade Openness	10%
Export	→	Poverty reduction	5%
Poverty reduction	→	Import	10%
Trade Openness	→	Tourist Earning	5%
Export	→	Tourist Earning	5%
Import	→	Tourist Earning	5%
Trade Openness	→	Export	10%
Trade Openness	→	Import	10%
Export	→	Import	10%

Source: Researcher's Computation, 2016

Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no competing interests.
Contributors/Acknowledgement: Both authors contributed equally to the conception and design of the study.

REFERENCES

Akaike, H., 1969. Fitting autoregressive models for prediction. Annals of the institute of Statistical Mathematics, 21(1): 243-247. Available at: https://doi.org/10.1007/bf02532251.

Dickey, D.A. and W.A. Fuller, 1981. Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica: Journal of the Econometric Society, 49(4): 1057-1072. Available at: https://doi.org/10.2307/1912517.

Engle, R.F. and C.W. Granger, 1987. Co-integration and error correction: Representation, estimation and testing. Econometrica, 55(2): 251-276. Available at: https://doi.org/10.2307/1913236.

Japan Bank for International Cooperation, 2010. Poverty profile. United Republic of Tanzania.

Johansen, S., 1991. Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. Econometrica, 59(6): 1551-1580. Available at: https://doi.org/10.2307/2938278.

Johansen, S., 1995. Likelihood-based inference in cointegrated vector autoregressive models. Oxford University Press on Demand.

Johansen, S. and K. Juselius, 1990. Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. Oxford Bulletin of Economics and Statistics, 52(2): 169-210. Available at: https://doi.org/10.1111/j.1468-0084.1990.mp52002003.x.

Kadir, N. and K. Jusoff, 2010. The cointegration and causality tests for tourism and trade in Malaysia. International Journal of Economics and Finance, 2(1): 138. Available at: https://doi.org/10.5539/ijef.v2n1p138.

Komsan, S., 2012. Modeling the linkage between tourism and multiple dimensions of poverty in Thailand. The Empirical Econometrics and Quantitative Economics Letters, 1(1): 17-38.

Luvanga, N. and J. Shitundu, 2003. The role of tourism in poverty alleviation in tanzania. Research on poverty alleviation. Tanzania: Dar es Salaam.

Richardson, R.B., 2010. The contribution of tourism to economic growth and food security. Mali: Office of Economic Growth, USAID Mali—Accelarated Economic Growth Team.

Rodriguez, F. and D. Rodrik, 1999. Trade policy and economic growth: A skeptic's guide to the cross-national evidence. National Bureau of Economic Research, Massachusetts. Available at: https://doi.org/10.3386/w7081.

World Bank Group, 2016. World development indicators 2016. World Bank Publications.